

REMARKS

Claims 1-13 are pending in the application.

Claims 1-13 were rejected.

Claims 1, 6 and 9 have been amended.

I. 35 U.S.C. §102 Claim Rejections

In the Office Action, claims 1-3 and 6-8 were rejected under 35 USC §102(a) as being anticipated by the prior art described in Applicant's Specification. Applicant respectfully traverses this rejection and requests reconsideration by the Examiner.

The invention is directed to error recovery in a Layer 2 Tunneling Protocol (L2TP) channel, and specifically provides a new process for a sender-initiated data recovery process. As taught by the Applicant, L2TP maintains a sequence variable, Sr, at a receiving peer representing the expected sequence value of the next packet sent from a sending peer. Upon receipt at the receiving peer of a packet having a sequence indicia corresponding to the expected, or Sr, sequence value, the value of the Sr variable is incremented by 1. It follows, therefore, that the incidence of the received-packet sequence indicia being greater than the expected (Sr) value -- *i.e.*, the case of the correct packet in the sequence not having been received by the receiver (lost packet), will result in the Sr value remaining unchanged.

With L2TP, the current value of the Sr variable is also sent from the receiving peer back to the sending peer in a defined field of a packet being sent from the receiver to the sender. Accordingly, the receipt by the sending peer of an Sr value that does not match the sent-packet sequence provides an indication of a lost packet. This indication is referred to as a negative acknowledgment.

According to the invention, a new variable, *multiple-negative-acknowledgments*, is defined and maintained at the sending peer, along with a counter to maintain a count of the number of such negative acknowledgments received. After a predefined number of such negative acknowledgments are received -- *i.e.*, the counter value is equal to that predefined number, a recovery process is initiated by the sending peer.

While, as Applicant described, a sender-initiated recovery algorithm is known in the art for L2TP, that prior-art mythology only operates to initiate a recovery process upon the expiration of a time-out interval, as determined by timing mechanism maintained at the sending peer, prior to receipt of a positive acknowledgment from the receiving peer. Applicant respectfully suggests that this prior-art timing-mechanism for initiating a recovery process by the sending peer is clearly different from the sender-initiated recovery process described and claimed according to her invention. Nonetheless, Applicant has amended independent claims 1, 6 and 9 to incorporate a limitation corresponding in substance to a limitation in independent claims 4 and 12 that should be patentable over the art of record. As so amended, Applicant believes that independent claims 1, 6 and 9 are clearly novel over the prior art as described in her application (a point implicitly acknowledged in his discussion of claims 4 and 12). All of the remaining claims rejected under §102 depend either directly or indirectly from one of those novel independent claims and thus should also be patentable.

Although Applicant recognizes that claims 4 and 12 were rejected in the present Office Action as being unpatentable over a cited §103 combination, Applicant will show in the next section that those claims should be patentable over the cited art.

II. 35 U.S.C. §103 Claim Rejections

Claims 4-5 and 9-13 were rejected under 35 USC §103(a) as being unpatentable over Applicants described prior art in view of Miller *et al.* (U.S. Patent No. 5,727,002). Applicant respectfully traverses this rejection and requests reconsideration by the Examiner.

Although Applicant does not believe that the prior art described in her application shows or suggests any material limitation of the claims at issue, the issue does not require further discussion here. In respect to independent claims 4 and 12, the Office Action acknowledges that the limitation respecting initiating a recovery process upon receiving a predetermined number of negative acknowledgements is not disclosed by Applicant's description of the prior art. The Office Action goes on to posit that such a limitation is taught by Miller and that it would have been obvious to one skilled in the art to combine the teaching of Miller with Applicant's described prior art to achieve Applicant's invention here. Applicant respectfully submits that such an expansive reading of Miller cannot be sustained.

As a starting point, it is to be noted that the methodology taught by Miller is not even remotely related to a Layer 2 Tunneling Protocol communication system. Rather, the teaching of Miller is directed to a system for multicasting a single information stream to multiple receiving clients. As part of its methodology, Miller sets up a procedure for determining frames of information which were either not received, or received in error by various of the receiving clients through negative acknowledgments sent back to the sending server by the clients. While an embodiment of Miller does contemplate the sending all of multiple negative acknowledgments from particular clients, it is critical to note that this is simply an accumulation of negative acknowledgments at a client, with each one relating to a different

packet error and which are accumulated and sent to the server at the same time as a matter of communication efficiency.

The invention, in sharp contrast, is addressed to a single communications link between one server and one client, and more important, the sender-initiated recovery methodology of the invention contemplates sequential transmission from the client to the server of individual negative acknowledgments, each addressed to the same error -- i.e., failure of the client to receive a particular packet sent by the server. That failure, as taught by the Specification, is manifested in the unchanging value of the Sr variable at the client as additional packets are sent from the server. Then, according to the method of the invention, upon receipt by the server of the same Sr value a predetermined number of times, indicative of the client not having received the packet corresponding to that Sr value, the server initiates the recovery process.

Applicant respectfully suggests that the teaching of Miller cannot reasonably be construed to show or suggested such a limitation. Accordingly, independent claims 4 and 12 should be patentable over Miller. As noted in the prior section, all of the remaining independent claims have been amended to incorporate limitations corresponding in substance to this distinctive limitation of claims 4 and 12. All of the remaining claims rejected under §103 depend either directly or indirectly from either claim 4 or 12, or from amended independent claim 9, and thus should also be patentable over the cited art.

V. Conclusion

Having fully addressed the Examiner's rejections herein, it is believed that, in view of the preceding amendments and remarks, this application now stands in condition for allowance. Such allowance is respectfully requested.

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Please charge any fees due in respect to this amendment to Deposit Account No. 50-1944.

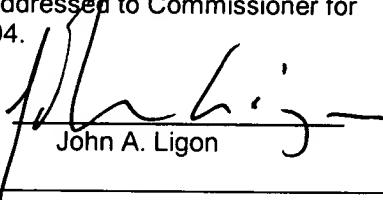
Respectfully submitted,


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I hereby certify that this Response to Office Action is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313 on November 15, 2004.

By: 
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